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EXAMINER

ENG, GEORGE

ART UNIT PAPER NUMBER

2643

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,460

Applicant(s)

JUDD ET AL.

Examiner

George Eng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) 29-35 and 48-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28, 36-47 and 53-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/21/2002
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 29-35 and 48-52 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 6/22/2004.

2. Applicant's election with traverse of Group I in the reply filed on 6/22/2004 is acknowledged. The traversal is on the ground(s) that the inventions are in the same class, but only in different subclasses, such that it would not be over-burdensome to search and examine all the claims in the single application. This is not found persuasive because Group I and Group II are independent or distinct from each other, and the patentability of Group I, i.e., translating RF signals from one wireless frequency band to another wireless frequency band in a wireless communication system for increasing the effectively capacity, does not rely on the detailed structure of Group II, i.e., an antenna system for communication in the wireless communication system. Thus, the additional search and examination of Group II, the detailed structure of the antenna system, would be serious burden even though Group I and Group II are in the same class.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

3. Claims 1, 13 and 22 are objected to because of the following informalities: claims 1, 13 and 22 would be more clarify by specifying a first occurrence "a translator system" as --a first translator system-- and a second occurrence "a translator system" as --a second translator system. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 9-15, 20-24, 26-28, 36-38, 40, 44-46 and 53-55 are rejected under 35 U.S.C. 102(e) as being anticipated by Karacaoglu et al. (US PAT. 6,684,058 hereinafter Karacaoglu).

Regarding claim 1, Karacaoglu discloses a wireless communication system comprising a base station (110, figure 4) with an antenna (255, figure 1), a first translator system (200, figure 4) having as an input first RF signals located in a first wireless communication frequency band, i.e., PCS band, and having as an output second RF signals located in a second wireless communication frequency band, i.e., ISM band, the antenna coupled for transceiving the second RF the second frequency signals associated with the translation system, and a remote antennal

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system (410, figure 4) including a remote antenna (314, figure 1) for transceiving the second RF signals associated with the based station, the remote antenna system including a second translator system (300, figure 4) having as an input the second RF signals, and operable to output RF signals located in the first wireless communication frequency band (col. 6 line 3 through col. 10 line 25).

Regarding claim 2, Karacaoglu discloses the remote antenna system further comprising a distribution antenna (330, figure 1) coupled to the second translator system for transceiving the RF signals of the remote antenna system located in the first wireless communication frequency band (col. 6 lines 48-52 and col. 8 lines 28-31).

Regarding claim 3, Karacaoglu discloses the first and second wireless communication frequency bands being predetermined bands of a frequency spectrum allocated by an authorized entity for wireless communications (col. 1 lines 54-57 and col. 2 lines 63-67).

Regarding claim 9, Karacaoglu discloses the signals in the first wireless communication frequency band output by the remote antenna system being configured to be used by customer premises equipment (col. 6 lines 50-52).

Regarding claim 10, Karacaoglu discloses the remote antenna including multiple arrays of antenna elements for defining multiple beams for the remote antenna (col. 9 lines 5-12).

Regarding claim 11, Karacaoglu discloses the remote antenna operable to provide the second RF signals in the second wireless communication frequency band as an output (col. 9 lines 13-34).

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Regarding claim 12, Karacaoglu discloses the remote antenna system for communicating with customer premises equipment (col. 6 lines 50-52), which the remote antenna system inherently includes a wireless hub.

Regarding claim 13, Karacaoglu discloses a wireless communication system comprising a first transceiving system (105, figure 4) including an antenna (255, figure 1) and a first translator system (200, figure 4) having as an input first RF signals located in a first wireless communication frequency band and having as an output second RF signals located in a second wireless communication frequency band, the antenna coupled for transceiving the second RF signals associated with the first translator system, a second transceiving system (410, figure 4), remote from the first transceiving system and including a remote antenna (314, figure 1) for transceiving the second RF signals associated with the base station, the second transceiving system including a second translator system (300, figure 4) having as an input the second RF signals, and operable to output RF signals located in the first wireless communication frequency band (col. 6 line 3 through col. 10 line 25).

Regarding claim 14, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 15, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 20, the limitations of the claim are rejected as the same reasons set forth in claim 9.

Regarding claim 21, the limitations of the claim are rejected as the same reasons set forth in claim 11.

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Regarding claim 22, the limitations of the claim are rejected as the same reasons set forth in claim 1. In addition, Karacaoglu teaches the remote antenna system including the second translator system having as an input the second RF signals and operable to output RF signal located in the first wireless communication frequency band, as well as other wireless communication frequency band, i.e., third RF signals located in the third wireless communication frequency band (col. 12 lines 45-48).

Regarding claim 23, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 24, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 26, the limitations of the claim are rejected as the same reasons set forth in claim 9.

Regarding claim 27, the limitations of the claim are rejected as the same reasons set forth in claim 11.

Regarding claim 28, Karacaoglu teaches the remote antenna system operable to output RF signals located in the first wireless communication frequency band (col. 12 lines 45-48).

Regarding claim 36, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 37, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 38, the limitations of the claim are rejected as the same reasons set forth in claim 3.

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Regarding claim 40, the limitations of the claim are rejected as the same reasons set forth in claim 9.

Regarding claim 44, the limitations of the claim are rejected as the same reasons set forth in claim 22.

Regarding claim 45, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 46, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 53, the limitations of the claim are rejected as the same reasons set forth in claim 13.

Regarding claim 54, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 55, the limitations of the claim are rejected as the same reasons set forth in claim 22.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 4-8, 16-19, 25, 39, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karacaoglu et al. (US PAT. 6,684,058 hereinafter Karacaoglu) in view of Elrefaie et al. (US PAT. 6,243,577 hereinafter Elrefaie).

Regarding claims 4-5, Karacaoglu discloses the first wireless communication frequency band being a PCS band (col. 6 lines 13-24), which the first wireless communication frequency bands are obviously selected from a group of bands comprising Cellular 800, DCS 900, DCS 1800, PCS 1900, UMTS 1900, UMTS 2100, unlicensed 2400, UNII 5.1 GHz, unlicensed UNII 5.1 GHz, UNII 5.8 GHz and unlicensed UNII 5.8 GHz. Karacaoglu differs from the claimed invention in not specifically teaching the second wireless communication frequency band being an MMDS band so that the second wireless communication frequency bands are selected from a group of bands comprising unlicensed 900, unlicensed PCS, MMDS 2500, WCS 2300, MMDS 3500, and LMDS. However, Elrefaie teaches a broadband wireless access system having frequency translation to local multi-point distribution system for personal communication service utilizing LMDS frequency band, which obviously includes a group of bands comprising unlicensed 900, unlicensed PCS, MMDS 2500, WCS 2300 and MMDS 3500, for providing communications between a base station (110, figure 3) and a picocell unit (115, figure 3),

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thereby extending the range of PCS systems (col. 3 line 18 through col. 5 line 4). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Karacaoglu in having the second wireless communication frequency band being an MMDS band so that the second wireless communication frequency bands are selected from the group of bands comprising unlicensed 900, unlicensed PCS, MMDS 2500, WCS 2300, MMDS 3500, and LMDS, as per teaching of Elrefaie, because it extends the range of PCS systems.

Regarding claims 6-8, Karacaoglu differs from the claimed invention in not specifically teaching the remote antenna system being incorporated within a picocell and propagates the signals in the first wireless communication frequency band in an area bounded by said picocell, wherein the translator associated with the remote antenna system is located inside a building and the remote antenna system is located inside a building. However, Elrefaie discloses a broadband wireless access system comprising a remote antenna system being incorporated within a picocell (115, figure 3) and propagates the signal in a PCS frequency band, wherein a translator associated with the remote antenna system, as well as the remote antenna system, is located inside a house (col. 4 lines 15-56) in order to offer the possibility of significantly reducing infrastructure cost. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Karacaoglu in having the remote antenna system being incorporated within a picocell and propagates the signals in the first wireless communication frequency band in an area bounded by said picocell, wherein the translator associated with the remote antenna system is located inside a building and the remote antenna

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system is located inside a building, as per teaching of Elrefaie, in order to offer the possibility of significantly reducing infrastructure cost.

Regarding claims 16-17, the limitations of the claims are rejected as the same reasons set forth in claims 4-5.

Regarding claims 18-19, the limitations of the claims are rejected as the same reasons set forth in claims 6-8.

Regarding claim 25, the limitations of the claim are rejected as the same reasons set forth in claims 4-5.

Regarding claim 39, the limitations of the claim are rejected as the same reasons set forth in claims 4-5.

Regarding claim 47, the limitations of the claim are rejected as the same reasons set forth in claims 4-5.

8. Claims 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karacaoglu et al. (US PAT. 6,684,058 hereinafter Karacaoglu) in view of Atkinson (US PAT. 5,883,884).

Regarding claims 42-43, Karacaoglu differs from the claimed invention in not specifically teaching the steps of transceiving non-translated RF signals in the second wireless communication frequency band at the remote antenna system and communicating with customer premises equipment through a wireless hub. However, it is old and well known in the art of transceiving non-translated RF signals in a wireless communication frequency band at a remote antenna system and communicating with customer premises equipment through a wireless hub or repeater, in order to attain improved transmission quality, for example see col. 2 lines 11-19 and

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col. 4 line 37 through col. 5 line 39). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Karacaoglu in transceiving non-translated RF signals in the second wireless communication frequency band at the remote antenna system and communicating with customer premises equipment through a wireless hub, as per teaching of Atkinson, in order to attain improved transmission quality.

Conclusion

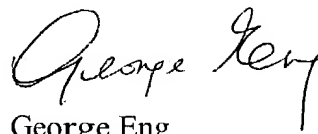
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wickman discloses a method of radio communication for making possible local network access for capacity-demanding broadband services in a cellular short-range system (abstract). Lerman (US PAT. 5,604,789) discloses a method for providing a digital wireless local loop (abstract).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Eng whose telephone number is 703-308-9555. The examiner can normally be reached on Tue-Fri 7:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A. Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in cursive script, appearing to read "George Eng".

George Eng
Primary Examiner
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